

(c) REMARKS

The claims are 1-12 with claim 1 being independent. Claims 2 and 10 were amended to resolve minor informalities unrelated to patentability. Reconsideration of the claims is expressly requested in view of the arguments presented hereafter.

It is acknowledged that claims 3 and 8 would be allowable if rewritten in independent form. Because Applicants believe the remaining claims are allowable for the reasons expressed hereafter, they have not rewritten claims 3 and 8 in independent form.

The Examiner did not consider the foreign patents submitted with the Information Disclosure Statement filed October 1, 2003 on the ground the copies of the foreign documents were not submitted at that time. That position is respectfully traversed.

The face of the enclosed return card (Exhibit 1) demonstrates that the mail room of the PTO imprinted their stamp evidencing receipt of the eleven (11) references filed therewith. Eight (8) of the eleven references were the foreign documents in issue. Apparently, the PTO has misplaced the foreign documents. To remedy that, replacement copies of each of the foreign documents listed in the Form PTO-1449 submitted with the IDS of October 1, 2003 have been enclosed. In addition, a replacement Form PTO-1449 listing the foreign patent documents (Exhibit 2) has been enclosed which should be initialled by the Examiner after consideration of the references and returned to Applicants.

As requested, a new, more definitive Title of the Invention has been provided.

In order to meet the objections to claims 2 and 10, claim 2 has been amended to delete the redundant term “peak” and claim 10 has been amended to delete an errant apostrophe.

Claims 1, 5-7, 9, 11 and 12 were rejected as either anticipated, or as obvious over, Higuchi ‘654. Claims 1, 2, 5-7 and 9-12 were rejected as either anticipated by, or as obvious over, Higuchi 2003/0165760 (Higuchi ‘760). Claims 1, 2, 4-7, 9, 11 and 12 were rejected as obvious over Higuchi 2002/0081513 (Higuchi ‘513) in view of Higuchi ‘654.

Essentially, the Examiner argues that because the toner of the applied references has the acid values, organometallic compound and releasing agent of the present invention, and that because the formed toner, said to have a similar size and circularity to the present claimed invention, will exhibit enhanced dispersion of carbon black and, therefore, enhanced loss tangent, the loss tangent exhibited will inherently be the same loss tangent as claimed. The grounds of rejection are respectfully traversed.

Prior to addressing the grounds of rejection, Applicants wish to briefly review certain key features and advantages of the present claimed invention.

The loss tangent ($\tan \delta$) satisfies the range specified by the present claimed invention when enhanced dispersibility of carbon black is present. The toner of the present invention utilizes a binder resin, wax and releasing agent which are selected so as to obtain appropriate acid values and hydroxyl values. Additionally, the dispersibility of the carbon black is enhanced by its method of incorporation into the toner. More specifically, to provide enhanced dispersibility, the carbon black or the mixture containing the carbon black, is mixed into a portion of the binder resin, followed by incorporating this mixture

into the balance of the binder resin. As a result, the dispersibility of the carbon black in the toner is improved.

Therefore, the carbon black can be readily dispersed in the binder resin by initially dispersing the carbon black into a portion of binder resin and then by incorporating the binder portion with the carbon black dispersed therein, into the balance of the binder resin. Because the initial dispersibility of the carbon black in the binder resin is not good, one cannot obtain an excellent dispersion of the carbon black (as intended by the present invention) when the carbon black is dispersed into the entire binder resin in a single step. This feature is disclosed on specification page 26, lines 5-9, wherein it is said that to obtain a more satisfactory dispersion of carbon black, one repeats the master batch step so the binder resin and carbon black are kneaded in advance to improve affinity. In Toner Particle Production Examples 1-5 and, especially in Toner Production Examples 2 and 5, carbon black and a portion of the binder resin are admixed, formed into a pulverizate, and then admixed with the balance of the binder resin (along with additives as wax and charge control agent).

In contrast, in Toner Particle Production Examples 6-9 the carbon black and binder resin are admixed in one step. In inventive Examples 1-5 and Comparative Examples 1-4, toner prepared by a stepwise mixing of carbon black with binder resin is compared to toner prepared by a one-step mixing method. The results in Table 4 shows that the circularity for Comparative Toners 7-9 and the ratio of $\tan \delta$ for Comparative Toners 6-9 are beyond the claimed ranges.

Furthermore, in Tables 5-9 on pages 58-60, it is seen that Comparative Toners 6-9 in Comparative Examples 1-4 consistently exhibit inferior fogging, either low or excess image density, enhanced change in transferring properly and reduced triboelectric charging stability, especially at low temperature/low humidity and high temperature/high humidity conditions. These results are summarized for Comparative Examples 1-4 on specification pages 61-63. Accordingly, the elements of the claimed invention, including the ratio of loss tangent, reflect the enhanced carbon black dispersibility.

The toner disclosed in the Examples of the cited references (Higuchi '654, Higuchi Publication '760 and Higuchi Publication '513) is a toner in which the carbon black is dispersed into the binder resin by mixing the carbon black into the entire amount of binder resin in a single step. However, as demonstrated in the instant Comparative Examples, such a method cannot provide the excellent dispersibility of the carbon black achieved by the present invention. The Comparative Examples of the present specification employ a toner produced by mixing the carbon black into the entire binder resin at once. (See, for example, Toner 6)

In instant Toner 6, the total value of acid value and hydroxyl value is within the range specified by the present claimed invention. However, the ratio of $\tan \delta$ (10^5 Hz) to $\tan \delta$ (5×10^4 Hz) exceeds 1.40 as specified by the present claimed invention. Therefore, in the toner described in the cited references, it must be assumed that the $\tan \delta$ in a frequency range of 10^5 to 10^4 Hz exceeds 0.0060 as specified by the present claimed invention and, further, that the ratio of $\tan \delta$ (10^5 Hz) to $\tan \delta$ (15×10^4 Hz) is beyond the range of 1.05 to 1.40 claimed in the present invention. An image formed by using a toner

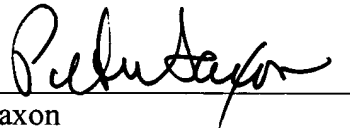
where the loss tangent $\tan \delta$ is not within the instant claimed range will exhibit poor stability against durability and/or environmental changes. This is clear from the results of the experiments using instant Toner 6.

Therefore, the present claimed invention which specifies the loss tangent ($\tan \delta$) is not inherently obtained nor is it obvious from the cited references.

Wherefore, the claims should be allowed and the case passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Peter Saxon", written over a horizontal line.

Peter Saxon
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505108v1

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date 10 / 1 / 03
Mo. Day Yr.

Atty. Docket 02910.000071

Application No. 10/629,751

Sir:

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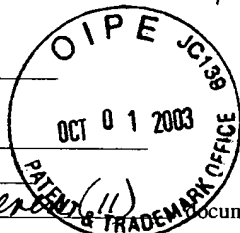
- ☐ Response to Official Action. _____
- ☐ Check for \$ _____ (claims fee)
- ☐ Petition under 37 CFR 1.136 and Check for \$ _____
- ☐ Notice of Appeal and Check for \$ _____
- ☒ Information Disclosure Statement, PTO-1449 and eleven (11) documents
- ☐ Claim for priority and certified copies of _____ priority applications
- ☐ Issue fee transmittal and Check for \$ _____
- ☐ Other (specify) _____

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| FORM PTO 1449 (modified) | | ATTY DOCKET NO. 02910.000071. | | APPLICATION NO. 10/629,751 | | | |
| U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE | | APPLICANT NOBUYOSHI SUGAHARA ET AL. | | | | | |
| LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary) | | FILING DATE July 30, 2003 | | GROUP 1756 | | | |
| U.S. PATENT DOCUMENTS | | | | | | | |
| *EXAMINER INITIAL | | DOCUMENT NUMBER | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
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| FOREIGN PATENT DOCUMENTS | | | | | | | |
| | | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION YES/NO/ OR ABSTRACT |
| | JP | 49-42354 | 04/20/74 | Japan | | | No |
| | JP | 55-26518 | 02/26/80 | Japan | | | Abstract |
| | JP | 58-60754 | 04/11/83 | Japan | | | Abstract |
| | JP | 61-277964 | 12/08/86 | Japan | | | Abstract |
| | JP | 64-35457 | 02/06/89 | Japan | | | Abstract & USP 4904560 |
| | JP | 1-145664 | 06/07/89 | Japan | | | Abstract |
| | JP | 7-64337 | 03/10/95 | Japan | | | Abstract |
| | JP | 10-186713 | 07/14/98 | Japan | | | Abstract & USP 6030737 |
| | | | | | | | |
| OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.) | | | | | | | |
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| EXAMINER | | | | DATE CONSIDERED | | | |

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Sheet 1 of 1